

INFORMATION REPORT INFORMATION REPORT

CENTRAL INTELLIGENCE AGENCY

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COUNTRY	USSR	REPORT	
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report on Soviet air-raid shelter construction, with a map designating towns discussed

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The proportion of the total Soviet urban population which would have access to a shelter during an air raid was estimated, in terms of minimum figures, as 21,750,000 persons by the end of 1956, and 33,750,000 by the end of 1960, based upon the number of housing units in post-1950-constructed apartment buildings.

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5. The date after which shelter construction became general seems to have varied considerably in different localities. In Asbest it was reported since the summer of 1949, in Staling since 1950 and in Revda, Pervouralsk and Krasnopol'ye since 1952. Some reports have also been received of shelters being constructed in the basements of existing houses.

6. Reports of shelter construction concern buildings of 2 stories and above, although [redacted]

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[redacted] only some 2-storied buildings had shelters. However as this was early in 1949 it is possible that present policy may include them all. A diagram in a 1955 Civil Defence handbook shows a basement shelter in a 2-storied house. Single-storied buildings may have cellars but none have ever been reported with air-raid shelters. It must also be remembered that all Russian houses ~~of any size~~ ^{or for some} have had basements to house heating apparatus long before the existence of air-raid shelters.

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7. A few reports have been received of detached shelters either serving a housing area or a single building. This type of shelter is mentioned in Soviet Civil Defence handbooks as being suitable for areas where there are no basements. It is obvious that basement shelters are considered the best means of mass protection, and other types of shelters will only be built in exceptional circumstances. If there has been any change of policy within recent years it has not been apparent from any of the evidence available.

8. There have been no reports of the construction of deep shelters apart from tunnels in hilly districts or in the banks of rivers, mostly built in wartime. The most notable of these was reported from Tbilisi, where a tunnel 112 m. long with smaller side-passages was built into a hillside in 1942. In 1949 it was reported that work was still being carried out on it. Other reports of hillside shelters have come from

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Gor'kiy, Vladivostok, ~~Vereshchinsk~~. There has also been a doubtful report of a tunnel under Vereshchinsk. Reports from Tallin of "deep shelters" under government buildings probably refer to basements. A subway is reported under construction in

Kiev, but may be for pedestrians and therefore too small to serve as a shelter. *Shelter areas have been reported outside the city and serve as a shelter of Riga and are supposedly destined for urban evacuation.*

9. The Metro in Moscow served as a deep air-raid shelter during the war and post-war extensions would make it even more useful for this purpose but there is no evidence to suggest that any extra tunnels or underground rooms have ever been added for Civil Defense purposes. A metro is under construction in Leningrad.

10. Simple types of trench shelters and dugouts are described in Soviet Civil Defense handbooks, and these are also claimed to give protection against blast and radiation from an atom bomb "some distance from the centre of the explosion."

11. The type of construction reported in basement shelters is fairly uniform. The exterior walls are normally of concrete 40-80 cm. thick, but are also sometimes of brick, boulders or broken stones about 80 cm. thick. The walls may be faced with tiles, perhaps to ensure that they are gas-proof.

Interior walls and partitions, dividing the basement into several rooms, are on the average not so thick, e.g. 80 cm.; exterior walls have usually 60 cm. interior ones. In large buildings sometimes only the centre part of the basement is used as a shelter (see diagram at Appendix A.)

12. Shelter ceilings are without exception of concrete, usually reinforced with iron rods 8-22 mm. thick, or steel beams, sometimes made from old rails. Some connection can be seen to exist between the size of the building and the thickness of the shelter ceiling, though evidence is too scanty to more than suggest the following relationship.

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Number of stories

Thickness of ceiling

2	15-30 cm.
3	20-80 cm.
5	30-50 cm.
6	1.50 m.
16-18	1.50 m.
32	1.15-1.50 m.

13. Examples occur of ceilings supported by concrete beams, e.g. a basement-shelter in a 9-storied building had a ceiling 40 cm. thick supported by ferre-concrete U-beams 20 x 20 cm. Supporting pillars of concrete or brick 50 x 50 cm. have also been reported. Such pillars are shown on the attached plan of a typical basement-shelter.

14. It is probable that a minimum standard for cement used for shelter construction has been laid down. a compression resistance of 110 Kg.

per square cm. was prescribed for use in shelters. Shelters are generally gas-proof and are fitted with double steel doors or wooden doors covered with sheet iron. Most are fitted with rubber edging. The thickness of these doors varies from 2 to 10 cm., typical dimensions being 1.40 m. x 1.10 m. x 2 cm. Air locks are also constructed between doors. In some cases it was reported that extra care was taken to ensure that the points of entrance of electric light cables, etc. were also made gas-proof.

15. The ventilation system consists of cast-iron tubes connected to filters and driven by a fan, which can also be hand-operated if the electric supply fails. (See Appendix A. diagram from Soviet handbook).

16. Emergency exits are provided in many cases and some shelters are connected by doors with those under the next-door buildings.

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17. The construction of large detached shelters seems similar to that of basement shelters. Generally the roof projects about 1 metre above the ground and is covered with earth and grass.

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18. In the case of trench shelters and dugouts the walls are reinforced with wooden posts and planks and have a roof consisting of wooden poles, 14-16 cm. in diameter, laid across the trench and covered by 20-25 cm. thickness of clay and on top of that 50-60 cm. thickness of earth and turf. Such a shelter is about 2-2.2 m. deep and in the case of a trench, 80 cm. wide at the bottom and 100-120 cm. at the top. A dugout type shelter is about 1.65 m. wide. The latter type may have wooden doors forming air-locks.

Availability of Shelters

19. It is difficult to assess the proportion of the total urban population of the U.S.S.R. who would have access to a shelter during an air-raid, but an estimated minimum figure may be arrived at based upon the number of housing units in post-1950 constructed apartment buildings.

20. [redacted] figures for flat construction as distinct from construction of other types of residential building.

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	No. of flats built
1950	500,000
1951-53	2,050,000
1954	600,000
Total at end 1954	3,150,000

If the current rate of construction is maintained at 600,000 flats per year, the total number of flats built since 1950 should total 4,350,000 by end 1956 and 6,750,000 by end 1960. If a figure of 5 persons per flat is assumed then a total is reached of 21,750,000 persons by end 1956, and 33,750,000 by end 1960, who would have shelters in the basements of their houses.

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* 21. These figures, of course, represent a minimum and do not include the people who would have access to shelters in factories, offices, government buildings, schools, etc. or those living in single-storied houses, who may have a detached shelter in the neighbourhood or a trench shelter dug in the garden. They likewise do not include shelters in houses built before 1950 for which no figures are available.

22. The inhabitants of Moscow and Leningrad have in addition the Metro as a form of deep shelter. In Moscow, by utilizing the tunnels as well as the stations, the Metro could probably shelter from one-fourth to two-fifths of the estimated 5 million inhabitants. The depth of the Metro makes it valuable as a protection against a nuclear attack, many of the stations being 80 feet and some around 200 feet below the ground. The value of the Metro as a shelter would depend considerably on whether the authorities could stop the trains and admit the people quickly enough in the event of a warning, the narrowness of entrance doors being one of the determining factors, and whether ventilation could be maintained during an attack.

23. Whether any of the types of shelters described above are constructed strongly enough to resist the explosion of nuclear weapons in the vicinity of ground zero and the total collapse of the buildings above is very doubtful.

thick, which is
However, the concrete casings in this case were from 12-20 cm. thicker than the average, although they were reinforced by steel "I" beams and supported by brick pillars. Nevertheless, the use of basement shelters would greatly reduce casualties in periphery areas.

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24. An announcement after the nuclear test explosion in November 1955 stated that "wide research was conducted on questions of defence of the people", but there has been no evidence as yet of any change in Soviet shelter construction policy.

Evacuation Policy

25. An article [REDACTED] 25X1
[REDACTED] already indicates an 25X1
awareness of the limited protection that might be afforded by
the normal type of shelter. [REDACTED] 25X1

[REDACTED] a combined evacuation and shelter 25X1
system as an additional defence measure. In view of the
likely destruction of shelters near the impact point, the
population should be dispersed to proper shelters at a
distance greater than twice the radius of the area of probable
destruction.

26. There is no evidence of implementation of any such
measures at present. Such thinking, if transformed into
action, would involve a large shelter construction programme
for areas distant from the main urban centres, together with
an elaborate evacuation plan necessitating the improvement of
suburban road nets, special organization of transport and
intensive training of the public.

27. There has been no evidence of training for any kind of
evacuation of large urban areas. Close security might
prevent any information on policy from leaking out, should
such plans exist on paper only. If an evacuation policy
were adopted, the civil defence staff, allied with the
numerous security personnel, police, and the millions of
DOSAAF members who have some civil defence and military train-
ing, would be valuable means of implementing it.

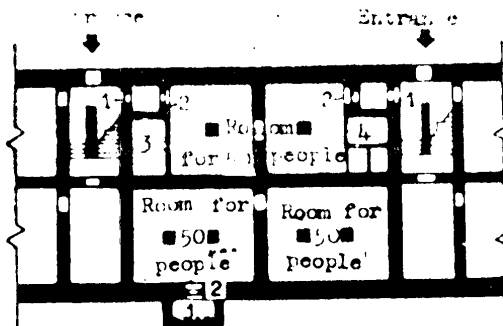
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Appendix A

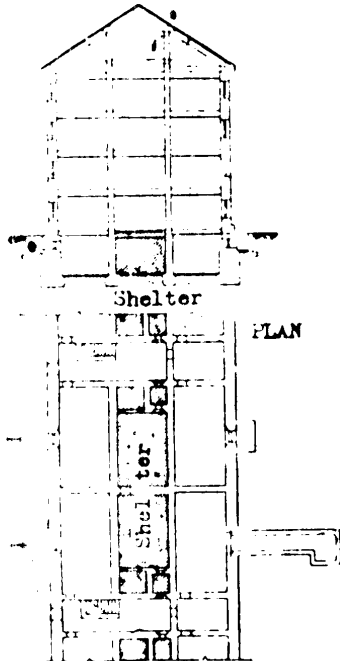
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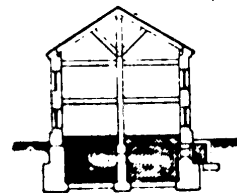
1. Protective air door.
2. Airtight doors.
3. Air - purifying installation.
4. Toilet.

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PLAN OF TYPICAL
BASEMENT SHELTER



SHELTER OCCUPYING CENTRAL
PART OF BASEMENT



SHELTER OCCUPYING WHOLE
BREADTH OF BASEMENT

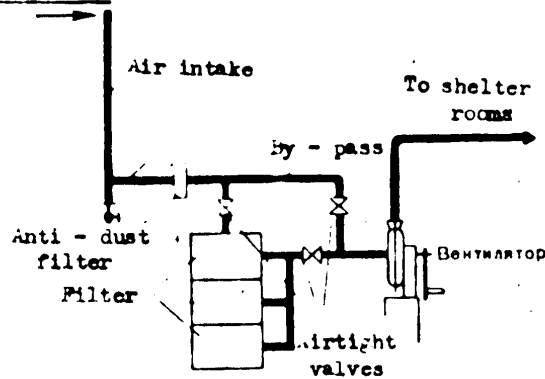


DIAGRAM OF
AIR-PURIFYING SYSTEM

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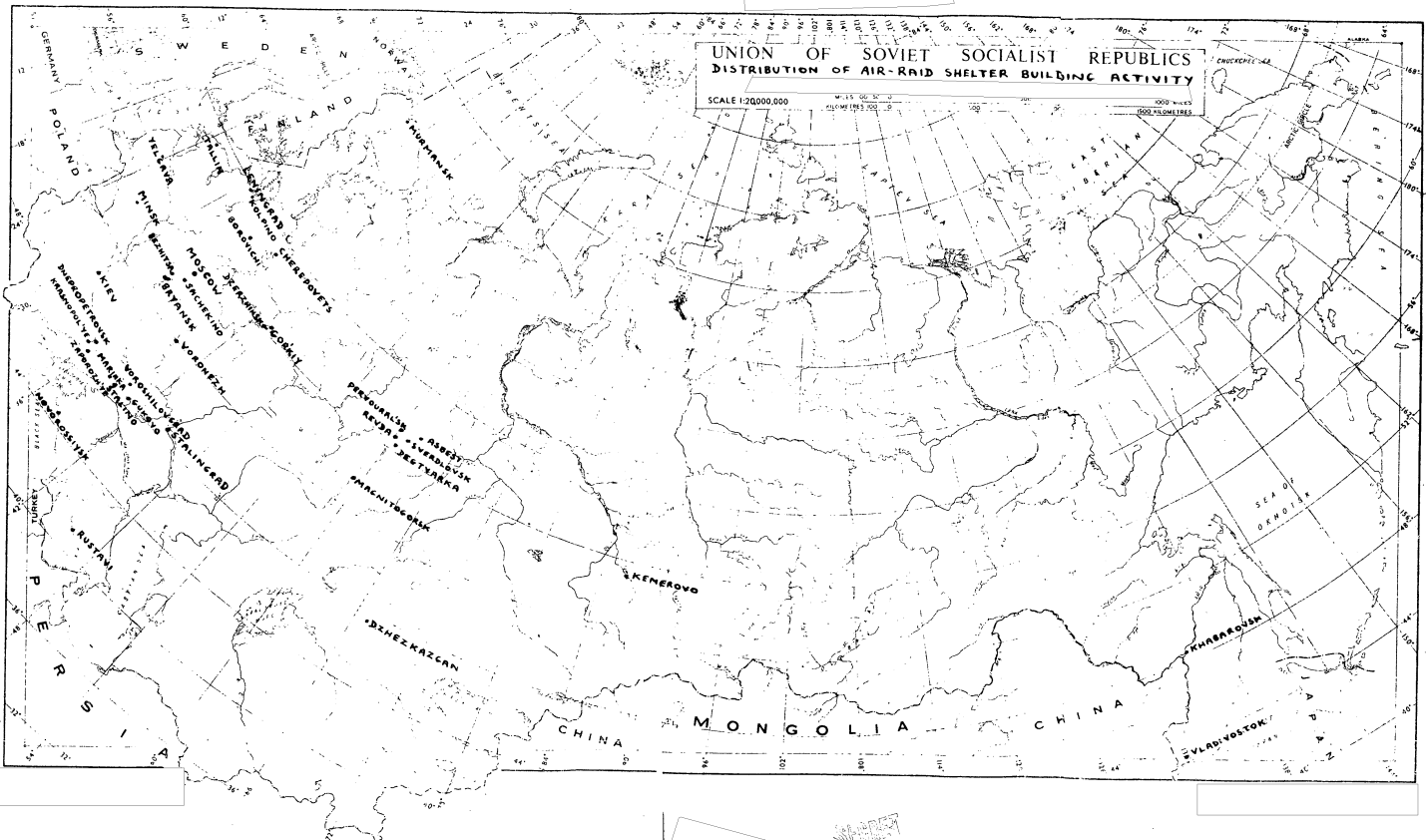
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APPENDIX B

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